Special Article

HSOs: Ontario's answer to HMOs?

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There has been a resurgence of interest in health service organizations (HSOs) because, as primary care centres funded through capitation, HSOs offer an alternative to traditional fee-for-service practice. This interest has been fueled in part by evidence of the cost-effectiveness of the HSO's US counterpart — the health maintenance organization (HMO) — and the announced intent of the Toronto Hospital Corporation to create a facility similar to an HMO (*Toronto Star*, Dec. 1, 1986: 17).

There are three models of HSO in Ontario: provider models (sponsored by physicians who own and operate the HSO), community board models (sponsored by nonprofit corporations, associations or hospitals and controlled through a board of trustees), and family practice unit models (sponsored by health science centres or teaching hospitals).

At present there are 34 HSOs in Ontario (26 are physician-sponsored, 4 community-sponsored and 4 university-sponsored) and more than 200 000 members.

HSO funding is based on a daily capitation rate specific to a member's age and sex. The monthly payment is calculated by multiplying the daily capitation rate for each age–sex group by the number of members in that group and by the number of days in the month and then totalling the figures for all the groups.

Monthly payments for a member are not provided (capitation negation) if that member receives from a physician not employed by the HSO any services that the HSO has been contracted to provide. Payments can be supplemented through the Ambulatory Care Incentive Program, wherein the HSO is given a sum of money equal to the difference in the average number of patient days between members and nonmembers in the region multiplied by the number of members and the average per-diem cost of hospitals in the region.

In theory capitated systems promote or emphasize preventive medicine, whereas fee-for-service emphasizes the treatment of illness. Since income in a capitation-funded system depends on the size of the patient roster and not on the overall volume of services provided, it is in the physician's interest to bring patients' health to a level that minimizes service volume.

Finally, the use of HSOs as an alternative to fee-for-service should reduce overall costs through competition, assuming that patients are cognizant of and sensitive to cost differences.

In this paper we examine whether the cost-effectiveness of capitation systems in Ontario is supported by the evidence. We will discuss a comparative study by the Ontario Ministry of Health of a fee-for-service practice and an HSO and review the literature on HSOs as it relates to Ontario's experience.

Anatomy of HSOs

In 1975 the Ontario Ministry of Health conducted a study comparing the costs per patient of the Sault Ste. Marie and District Group Health Association with those of the Glazier Medical Centre in Oshawa.[1] The study also partially addressed the cost-effectiveness of two payment mechanisms by examining the medical and hospital services provided to patients by type of illness and after standardizing for age differences.

The "Sault", an HSO, was funded through capitation; that is, the association received a monthly fee for each of its participants from which staff, including doctors, and other expenses were paid. The "Glazier" was a group practice about the same size as the Sault practice (employing 22 and 29 physicians respectively) and was paid a fee for each medical service provided.

The study was conducted in two parts. In part one, hospital and medical care services and costs were evaluated. The ministry concluded that

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"there [was] no evidence of any significant differences in overall costs of health care between the two clinics".[2]

The Sault's per-patient costs were roughly equivalent to those of the Glazier as a result of the offsetting of higher insured medical service costs by lower inpatient costs (Table I). Inpatient costs per patient were calculated by multiplying the number of hospital days per patient by the average per-diem rates of the hospitals used by each facility ($77.14 for the Sault and $94.17 for the Glazier). However, the per-diem rates were independent of the centres and should have been equalized to avoid a cost difference that could not be attributed to the different payment mechanisms. Furthermore, had the rates been made equal the Sault's per-diem rate would have been $85.82 and the total per-patient costs of the Glazier $183.91 — that is, $21 (11%) lower than those of the Sault. With this method the study would have shown the Sault to be more costly per patient.

The ministry rejected equalization of the per-diem rates, stating that "the use of 'actual' per diems for each hospital reflected a more realistic cost of care".[3] Lomas[4] may have offered a more accurate explanation: that the results as presented were "politically dangerous to the survival of the capitation alternative". The ministry's method minimized that danger.

Part two of the study was intended to evaluate the quality of care provided to patients with one of six "tracer conditions": diabetes mellitus (treated in or out of hospital), cholelithiasis–cholecystitis, myocardial infarction, well-baby care and perinatal care.

An independent group of physicians retrospectively examined the clinic and hospital records of patients with the identified conditions and rated each record between 1 (poor care) and 5 (excellent care). The only discernible differences between the two clinics were for diabetes mellitus treated in hospital, for which the Sault received a higher rating, and perinatal care, for which the Glazier received a higher rating. On this basis the ministry concluded that the quality of care at the two centres was equivalent.

However, the volume of services per patient, adjusted for age and sex, was 10.6 for the Sault and 17.0 for the Glazier; the unadjusted volumes were 10.8 and 16.6 respectively. Not only was the overall volume of the Sault 36% lower but also the volume for each service category was lower (Table II). No conclusion was reached about the effect of this difference on the quality of care provided to patients with other conditions.

The ministry stated that the difference in cost and quality between the two centres was small, that there were shortcomings inherent to the data and that the study method was unable to control for factors that may have affected the outcome. The ministry concluded, therefore, that neither payment mechanism was better in terms of patient care.

Anatomy of HMOs

HMOs are prospective payment mechanisms funded through premiums paid by each participant (capitation). Although HMOs have been in the United States since the early 1900s, Canada's first "HMO", the Sault Ste. Marie and District Health Association, began in 1958.

Initial growth in the number of HMOs in the United States was slow (there were only 33 in 1970), but with the Health Maintenance Act of 1973 the US Congress began to actively promote the creation of HMOs. Now more than 500 HMOs provide care to more than 30 million Americans.

On the whole the literature on cost favours HMOs. However, recent studies have questioned the extent of any savings with the use of HMOs. Because employees can often choose to have their health care provided by an HMO, selection bias may play a significant role in reduced costs. People for whom frequency of hospital admission is low and length of stay short and those who subscribe to preventive medicine and are unconcerned about not having a free choice of physician are the most likely to enrol in an HMO.[5,6]

Savings are not evident with respect to specific diseases such as colorectal cancer[7] and rheumatoid

Table I — Medical and hospital costs per patient by practice type

Variable	Cost ($); practice type	
	Health service organization (HSO)*	Fee for service†
In-patient services	86.93	104.77
Insured medical services	119.22	98.09
Total	206.15	202.86

*Sault Ste. Marie and District Group Health Association. †Glazier Medical Centre.

Table II — Health services per 100 patients by practice type

Type of service	No. of services; practice type	
	HSO	Fee for service
Office visit	358.8	474.1
Home or special visit	1.2	11.9
Hospital visit	38.0	98.5
Emergency department visit	17.5	22.8
Laboratory procedures	465.8	627.7
Radiologic procedures	64.6	82.1
Obstetric care	1.5	4.4
Major surgery	5.9	7.8
Minor surgery	6.4	14.5
Diagnostic and therapeutic procedures and tests	66.6	192.6
Detention services and extra fee codes	6.1	11.3
Total	1032.4	1547.7

arthritis,[8] for which care and treatment do not appear to differ between an HMO and a fee-for-service provider once the diagnosis has been made, or for the treatment of osteoarthritis under an HMO or a modified fee-for-service system.[9] For some services, such as ambulatory mental health care, HMOs have been shown to provide less care.[10]

Some of the lower costs of HMOs may arise not just from the provision of fewer services but also from delayed use of services. In a survey of patients with colorectal cancer the median interval between initial contact with a physician and treatment was 47 days for HMO patients and 14 days for patients of physicians paid fees for service.[7] No difference in outcomes was detected.

Expenditures have been found to be 25% lower in HMOs than in fee-for-service practices, primarily because of lower rates of hospital admission and shorter stays.[11] Some savings also result from the use of fewer diagnostic tests.[12] However, estimates of expenditures for HMO patients may be understated. Because patients can and do receive unreported care outside HMOs the true rates of hospital admission have been estimated to be 7% to 37% higher than those reported.[13]

Quite apart from costs is whether HMOs have been more successful in curbing the rate of increase in expenditures. Costs of care under HMOs and traditional fee-for-service practices were assessed in the 1960s and early 1970s and again between 1976 and 1981. It was found that the costs for the two systems rose at about the same rate. Thus, it appears that HMOs provide a one-time reduction in expenditure.[14]

A more difficult issue has been whether HMOs achieve lower costs at the expense of quality of care. Crude health outcome measures show no apparent differences in quality of care between HMOs and fee-for-service practices. One study showed differential effects for patients who were poor or not poor.[15] HMO patients who were not poor improved, whereas those who were poor were more ill and were at greater risk of dying than were patients in "free" fee-for-service plans (i.e., those without deductibles and co-payments).

The effect on patients' health habits is another, albeit indirect, way of measuring the quality of care of a delivery mechanism. Free fee-for-service plans have been shown to be more effective, though not significantly so, in smoking cessation, weight control and control of serum cholesterol levels than HMO plans. On the other hand, HMO plans produced a smaller but significant improvement in smoking habits compared with "pay" fee-for-service plans (i.e., those with deductibles or co-payments).[15] Except for the latter, these findings suggest little difference in the emphasis on or the effect of preventive care between the two systems.

Finally, what is the competitive effect of HMOs? If HMOs are less costly, then fee-for-service providers should lower their costs to be competitive and maintain market share. There has been no significant impact on system costs resulting from competition between HMOs and fee-for-service providers.[16,17]

HMOs v. HSOs

Whatever the merits or disadvantages of HMOs, caution should be taken in using the terms HMO and HSO interchangeably. Before the introduction of medicare in 1969 HSOs were not appreciably different from the US HMOs on which they were patterned. This is not the case now.

HMOs differ from HSOs in two very important respects. First, consumers contract with HMOs for all health care; when services (typically hospital care) are not available from the HMO the HMO directs its patients to other facilities or practitioners with which it has contracted for services. The charges for services provided outside the HMO are billed directly to the HMO and not to the patient. HSOs, on the other hand, do not have to finance referred services and so have no incentive to ration hospital care. Therefore, the government provides an "ambulatory care incentive payment" to HSOs, whereby HSOs receive a portion of the savings to government realized from reduced amounts of hospital care.

Second, HMO patients are "locked in" — that is, they are responsible for the full cost of medical or hospital care obtained outside the HMO if they have not been referred by the HMO to that source. Hence, there is a strong financial disincentive for patients to stray from the HMO. In contrast, HSO patients face no appreciable financial barrier to external care and so may split care between the HSO and fee-for-service providers.

These differences relate to HMOs' being managed care systems, whereby the total care of patients is dictated by the HMO. Although this aspect is the largest contributer to cost savings it is also the focus of most criticism of HMOs. The costs are controlled through referrals. Because payments are prospective and well defined, they become the driving force behind referral patterns; hence, there may be an incentive to delay referrals, and therefore treatment, as long as possible to reduce costs or stay within the budget.

Improving the efficiency of HSOs

The US experience suggests that major changes to HSOs are necessary to capture the purported efficiencies of HMOs. For example, patients may have to accept being locked in to an HSO. The need for locking in is important not only from the perspective of splitting care — a situation that almost certainly increases costs — but also because it is difficult to keep track of enrolment. Patients have no incentive to remove their names from the roster of an HSO; therefore, capitation payments to the HSO may continue after the

patient has decided to use other providers of health care. Barriers to external or nonreferred care, such as the designation of all nonreferred medical services outside the HSO as "uninsured", may be necessary.

Once patients are locked in, the volume of referred services may have to be restricted by the HSO. Although the ambulatory care incentive payment tends to influence referral patterns it is only a partial offset to savings; thus, the incentive is not likely to be sufficient to achieve the same level of restriction as would be realized with the HMO's fixed budget for all care.

For HSOs to become price-sensitive as opposed to volume-sensitive to external care they may need to become financially responsible for such care. There would then be more efficient use of external resources and, if price could be set by the market, a possible drop in price. Such is the case with HMOs, which negotiate with preferred provider organizations on the price of referred care. The latter pass on efficiencies they achieve through "economies of scale" so that HMOs receive, in effect, a volume discount.

Discussion

In theory capitated systems should reduce costs by placing a greater emphasis on preventive care and by increasing competition among health care providers. From a budgetary standpoint government is attracted to capitated systems, and so to HSOs, because funding is determined by the product of price and the number of patients rather than by the product of price and the volume of services. Thus, expenditures are isolated from the observed steady increase in the use of the system by patients.

In addition, the HSO's emphasis on preventive medicine effectively increases the average price per service by allowing physicians to lower volume. HSOs can help physicians by providing a higher average price and be attractive to the government by being less costly than fee-for-service practices. This will occur provided that the savings resulting from the lower volume of services are not entirely absorbed by the effective increase in average price; that is, physicians and government must share any benefits arising from the lower volume of services.

To date, the evidence from Ontario is not supportive of capitation. According to the Sault and Glazier study,[1] the only study of its kind to be made public by the government, HSOs cost more per patient and exhibit no higher quality of care than fee-for-service practices for patients with one of several tracer conditions.

However, if the quality of care of HSOs and fee-for-service practices is the same and yet HSOs have a lower volume of medical services then either HSOs have a higher quality of care for each service or they have a lower quality of care for patients with conditions other than those examined in the study. Alternatively, the use by HSOs of nonphysician health care personnel to provide ancillary services to patients may substitute for many of the services of physicians. (Fee-for-service patients also have access to ancillary services, but the availability of those services in hospital is not usually as extensive as in HSOs.) Therefore, the quality of medical services or the treatment of selected illnesses may not be compromised. However, the cost of the ancillary services was not considered in the Sault and Glazier study.

To the extent that we can borrow from the evidence on HMOs, the level of savings that may be achieved by promoting HSOs is in question, as is the quality of care. It appears that if overall savings are achieved by an HMO they must accrue to the care of patients whose treatment may be given reasonable latitude in resource allocation. That is, savings may occur when the patient's condition is such that the physician can cut back services or delay treatment without adversely affecting the outcomes.

Substantive changes to HSOs may be required before HSOs can hope to realize the savings suggested by HMOs. We must question whether such a drastic change of emphasis in our health care delivery system is worth unproven benefits. Can such a change even be introduced when the government is committed to abolishing any barriers to accessibility, such as point-of-service charges?

There is a danger that the use of HSOs might increase overall costs or that, to realize the possible benefits inherent to capitation, restrictions may be required that will prove so severe that HSOs will be unacceptable to both consumers and providers. Yet HSOs have the potential to benefit both consumers and providers while reducing costs. Thus, HSOs merit attention and considerable study. But on the basis of the evidence HSOs do not yet deserve the promotion accorded them by the government. The government should instead concentrate its efforts on evaluating the effectiveness of the HSOs already established in Ontario.

References

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Meetings

continued from page 514

May 31-June 3, 1989: Canadian Society of Plastic Surgeons 43rd Annual Meeting
Westin Hotel, Edmonton
Dr. Joseph A. Starr, secretary-treasurer, Canadian Society of Plastic Surgeons, 336-1333 Sheppard Ave. E, Willowdale, Ont. M2J 1V1; (416) 494-7422

May 31-June 3, 1989: Newfoundland Medical Association Annual Convention
Arts and Culture Centre, Grand Falls, Nfld.
Judy Hunt, administrative assistant, Newfoundland Medical Association, 164 MacDonald Dr., St. John's, Nfld. A1A 4B3; (709) 726-7424

June 1-3, 1989: Alberta Pharmaceutical Association Annual General Meeting and Convention
Jasper Park Lodge, Jasper, Alta.
Olly Kochan, 10615-124 St., Edmonton, Alta. T5N 1S5; (403) 488-8152

June 1-4, 1989: Ontario Pharmacists' Association Annual Meeting and Conference
Inn on the Park, Toronto
David Windross, 707-99 Avenue Rd., Toronto, Ont. M5R 2G5; (416) 922-7740, FAX (416) 922-5411

June 2-4, 1989: 2nd Annual Victoria Symposium on Child Sexual Abuse — Victims, Offenders and their Families: Issues in Coping, Caring and Changing
University of Victoria
Conference Office, University of Victoria, PO Box 1700, Victoria, BC V8W 2Y2; (604) 721-8470, FAX (604) 721-7212

June 4-8, 1989: Joint Meeting of the Canadian Society of Clinical Chemists, Canadian Association of Medical Biochemists and American Association of Clinical Chemistry (Upstate New York Section)
Hamilton Convention Centre, Hamilton, Ont.
Darius J. Nazir, CSCC 1989 Annual Conference, Hamilton Health Sciences Laboratory Program, PO Box 2000, Stn. A, Hamilton, Ont. L8N 3Z5; (416) 527-0271, ext. 4558

June 4-9, 1989: 5th International Conference on AIDS
Convention Centre, Montreal
Kenness Canada Inc., PO Box 120, Stn. B, Montreal, PQ H3B 3J5; (514) 844-4442, FAX (514) 284-2968

June 4-10, 1989: Cardiac Rehabilitation Exercise Specialist Workshop (incorporating the American College of Sports Medicine Exercise Specialist Certification Practical Examination)
University of Ottawa Heart Institute
Mr. F. Monopoli, University of Ottawa, 631 King Edward Ave., Ottawa, Ont. K1N 6N5

June 8-10, 1989: Annual Meeting of the Medical Society of Prince Edward Island
Mill River Resort, Woodstock, PEI
Marilyn Lowther, executive secretary, Medical Society of Prince Edward Island, 100-18 Queen St., Charlottetown, PEI C1A 4A1; (902) 892-7527

June 8-10, 1989: Canadian Psychological Association Annual Convention
World Trade and Convention Centre, Halifax
Mary Ahearn, convention coordinator, Canadian Psychological Association, Vincent Road, Old Chelsea, PQ J0X 2N0; (819) 827-3927

June 9-12, 1989: Congrès de la pharmacie québécoise, Ordre des pharmaciens du Québec
Gray Rocks Inn, Laurentides, PQ
Micheline Brisebois, 301-266 ouest rue Notre Dame, Montréal, PQ H2Y 1T6; (514) 284-9588

June 13-16, 1989: Canadian Hospital Association Annual Conference
Municipal Convention Centre, Quebec
S. June Walsh, conference director, Canadian Hospital Association, 100-17 York St., Ottawa, Ont. K1N 9J6; (613) 238-8005

June 14-16, 1989: Annual Conference of the Canadian College of Health Record Administrators/Canadian Health Record Association: Realities and Prospects
Hilton International Hotel, Edmonton
Canadian College of Health Record Administrators/Canadian Health Record Association, 301-1185 Eglinton Ave. E, Don Mills, Ont. M3C 3C6; (416) 429-5835

continued on page 524